Agriculture Canada

FOWL TUBERCULOSIS

PUBLICATION 1105 1961

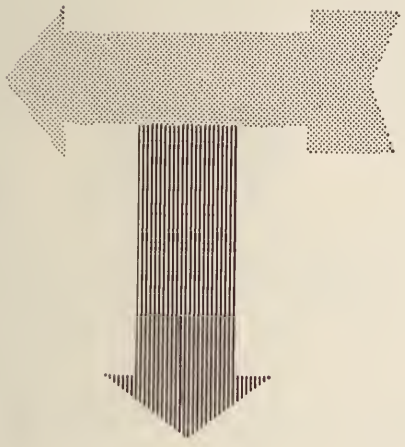
Copies of this publication may be obtained from
INFORMATION DIVISION
CANADA DEPARTMENT OF AGRICULTURE
OTTAWA
K1A 0C7

First printed 1961
Reprinted 1961, 1963, 1965, 1968, 1974.

5M-36733-2-74
A63-1105

Campbell Printing
04KT-01 A04-36733

Experience has shown that the initial expense in time and money, in establishing a tuberculosis-free flock of poultry on a clean environment and well-managed range, has been repaid by increased health, longevity, better egg production and better carcass quality. In addition, the spread of avian tuberculosis to swine and the possibility of avian sensitization of cattle, have been eliminated on farms where tuberculosis-free flocks have been established.



FOWL TUBERCULOSIS

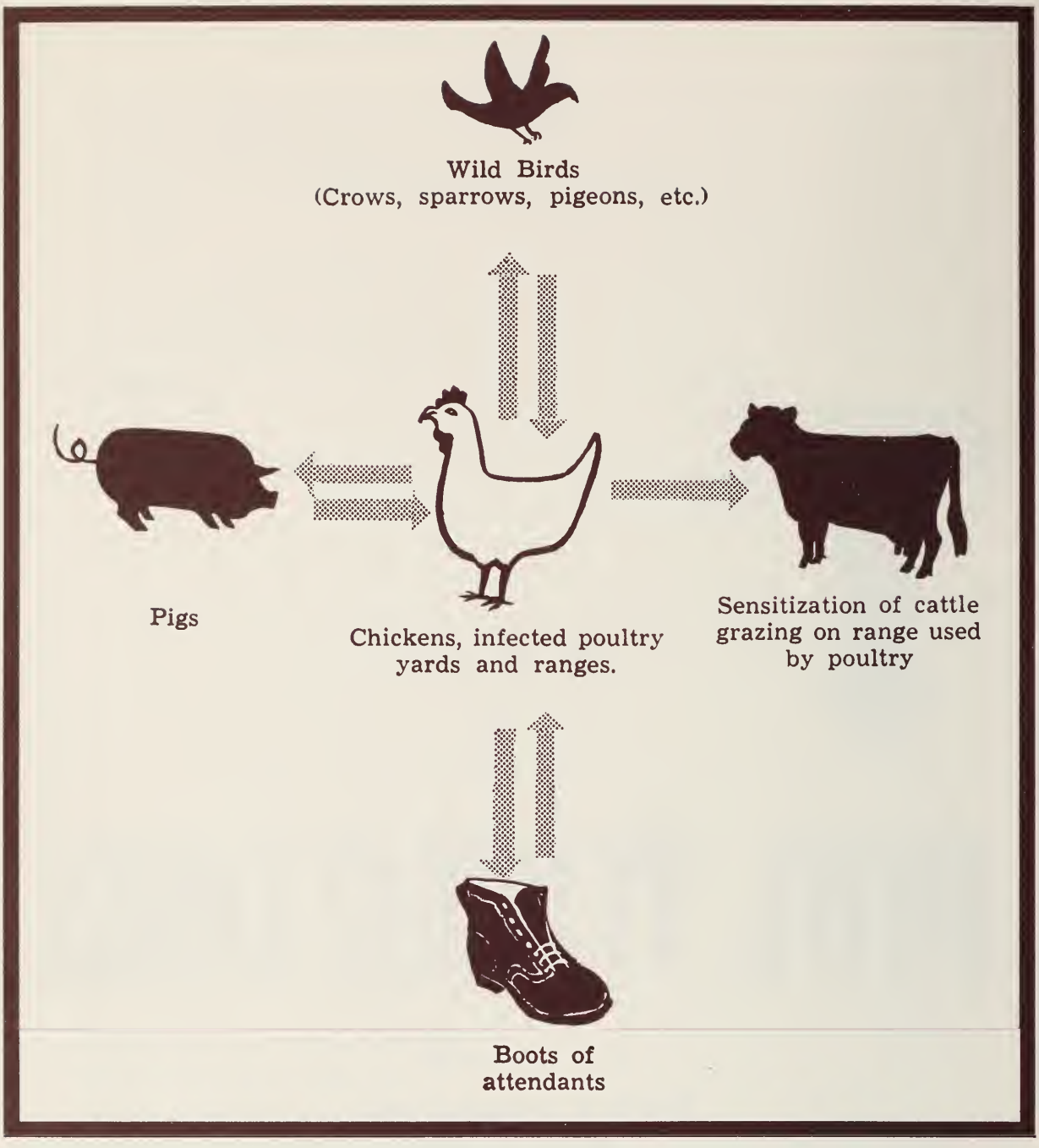
J. E. Lancaster

Health of Animals Branch

Ottawa, Ontario

From early times, tuberculosis has been a very important disease affecting humans and animals. Tremendous strides have been made in the elimination of tuberculosis in humans, due to advanced medical knowledge and new methods of treatment. Also, since 1919, through the Canadian test-and-slaughter program for controlling this disease in cattle, the incidence of bovine tuberculosis has declined from approximately 9 per cent to 0.08 per cent of the total cattle population in Canada.

Unfortunately, the same cannot be said for fowl (avian) tuberculosis; its incidence has remained fairly constant in some areas of the country. Of course, the incidence of the disease has decreased in areas where poultry raising has become more intensive and specialized, and where the birds are kept for only short periods of time.



Fowl tuberculosis is found mainly where the birds are raised on the same ground year after year. The tuberculosis germ (avian tubercle bacillus) may be brought to this ground by infected wild birds, such as crows, sparrows and pigeons. In addition, infected fowls brought from other premises, and sometimes tuberculous hogs, may introduce the disease to a flock of chickens.

Once the germ of avian tuberculosis becomes established on the poultry range or in the buildings housing the poultry, the disease is difficult to remove. This is because the germ is very resistant to ordinary atmospheric conditions and can stay alive for 12 months or longer in soil, farm manure and buildings. Freezing does not readily destroy it. On the other hand, the germ is destroyed by direct sunlight, provided it is not protected by soil, manure, dust, etc.

A tuberculous fowl never recovers, and the disease cannot be arrested by medicinal treatment. In addition to the financial loss due to carcass condemnation, tuberculous fowls have less flesh, produce fewer eggs and show general unthriftiness.

Avian tuberculosis is important in swine

In Canada, an estimated 85 per cent of the tuberculosis found in swine is caused by the avian tubercle bacillus. Usually the disease is spread to swine by poultry that are allowed to range freely and have access to hog pens. Swine readily become infected from the droppings of tuberculous chickens or from eating carcasses that contain the germ.

Cattle may become sensitized

Cattle do not readily become infected with avian tuberculosis, but when tuberculous poultry have access to areas where there are cattle, many of the cattle become sensitized. This means that when they are submitted to the tuberculin test, these avian-sensitized cattle will react to the test in a similar way to cattle that have bovine tuberculosis. Such cattle will be classified as reactors under the present test-and-slaughter program of the Canada Department of Agriculture.

Humans are susceptible

A number of authentic cases of avian-tubercular infection of humans have been reported.

The disease in fowls

Tuberculosis in the fowl may remain unsuspected for several weeks or months. During this period the disease develops progressively. Droppings of infected chickens spread the disease germs in large numbers over the pasture and in the hen house. Later, these chickens usually become thin, pale in the comb and often lame.

Figure 1.—Carcass with exposed tubercular liver.

In the advanced form of the disease, the liver and spleen are usually affected and evidence of the disease may be found in other parts of the body, including the intestinal wall. Often, affected organs have nodules or tubercles both inside and on the surface (Figures 1 to 4). These yellowish-white lesions vary in size and number. Usually they have a characteristic appearance; however, certain tumors in the liver and spleen may resemble lesions of tuberculosis. When lesions are present in the intestinal wall, tuberculous ulcers often appear and these result in the discharge of very large numbers of tubercle bacilli in the droppings.

Figure 2.—Chicken with tubercular liver.

Figure 3.—Arrows indicate tubercular lesions in liver and spleen.

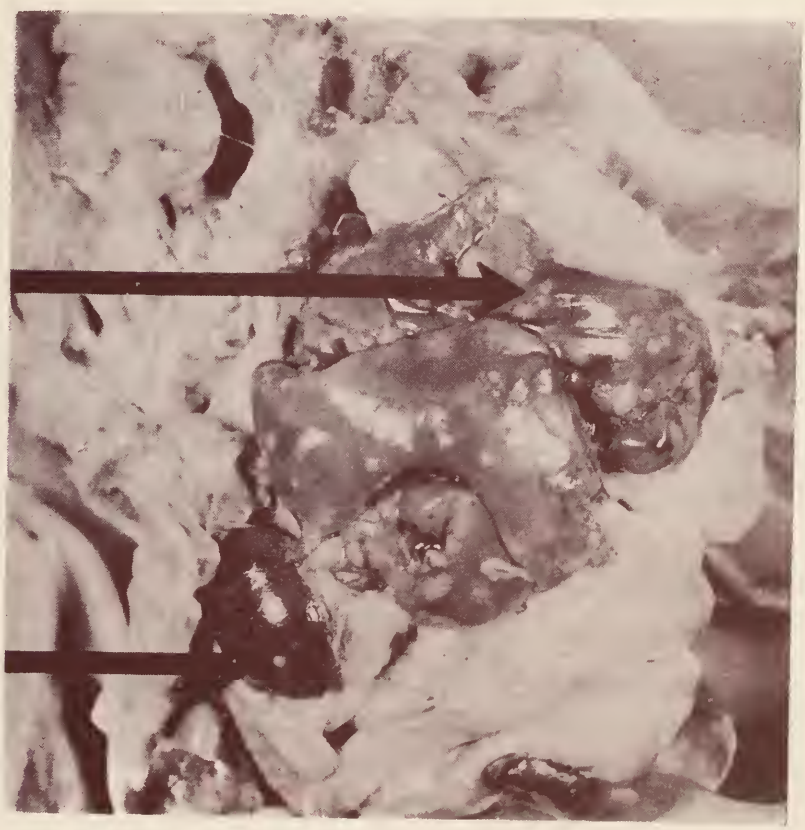


Figure 4.—Arrows indicate tubercular lesions in liver and intestines.

CONTROL

An infected environment can remain the source of infection for many years unless active measures are taken to prevent the establishment of the disease on a farm.

Where the poultry houses and fittings are old and in poor repair, and have housed poultry for many years, they should be abandoned. New facilities should be established on fresh, clean land. The new houses should be built to admit direct sunlight, since this destroys the tubercle bacillus. Concrete or wooden floors facilitate cleaning and disinfection at regular intervals.

Cleaning and disinfection

If it is not practical to abandon present infected facilities and establish new ones, a thorough cleaning and disinfecting program must be carried out. Remove all litter, droppings, dust, etc., and cover with soil to prevent poultry, animals and wild birds gaining access to it. Plough the infected material into the ground at a convenient time.

Following this, clean the entire building by washing and scrubbing with hot lye (1 pound of lye to about 8 gallons of water). Be careful not to get splashed when adding the lye to the water. Also, lye will damage aluminum.

After cleaning with lye, which does not readily kill the tuberculosis germs, the poultry building must be thoroughly disinfected. For this purpose, 3 per cent cresol solution (cresolic disinfectant), using approximately 4 ounces of cresol to 1 gallon of water, is recommended. Ventilate and air the poultry house before putting in the birds.

The ground and range

The ground surrounding the poultry house, and the land over which poultry range, cannot be disinfected adequately by artificial means. Direct sunshine and weather conditions, such as dryness, are reliable means of destroying tuberculosis germs. Due to the prolonged survival of tubercle bacilli, other harmful bacteria and worm eggs, a three-year range rotation has been found the best way to free the land of disease organisms and parasites. Under this system, the poultry are ranged over a separate area of land each year for three years. At the end of a three-year period, the new pullets are placed on the first range. This means that each range has no poultry on it for two successive years in each rotation. Such land may be used for growing crops but not for grazing cattle or hogs.

Culling the flock

Tuberculosis is usually more severe and more dangerous in older fowls. Thus, the disposal of all birds in the flock at the end of the first laying year is a practical way to reduce the incidence of tuberculosis on a farm. Also, chickens generally lay approximately 20 per cent less eggs in their second laying year.

Cull the flock carefully, since a single tuberculous bird can continue to infect the farm. All culled chickens must be killed and disposed of by burning or deep burial, and not used for human consumption.

By itself, the system of removing all birds at the end of the first laying season will not overcome the risk of tuberculosis, since occasionally, severe generalized tuberculosis may occur in pullets. Such affected pullets are known to excrete very large numbers of living tubercle bacilli.

The new flock

Hatching eggs are unlikely sources of infection, so a new flock may be established from eggs laid by the old, infected flock. However, it is safer to establish the new flock from hatching eggs or hatched chicks obtained from sources known to be free from tuberculosis.

TO CONTROL AVIAN TUBERCULOSIS

1. Raise young chickens in clean disinfected houses on clean new ground, well isolated from the old laying flock.

2. Market all hens after one laying year.

3. Clean and disinfect poultry houses thoroughly before introducing new pullets.

4. If range is used, adopt a three-year range rotation program.

5. Keep all poultry well isolated from hogs and cattle.

6. Destroy carcasses of dead poultry promptly by burning or deep burial.

Additional information on the control of poultry diseases can be obtained from your nearest Veterinary Officer of the Health of Animals Branch, Canada Department of Agriculture.

METRIC EQUIVALENTS

LENGTH

inch	= 2.54 cm	millimetre	= 0.039 in.
foot	= 0.3048 m	centimetre	= 0.394 in.
yard	= 0.914 m	decimetre	= 3.937 in.
mile	= 1.609 km	metre	= 3.28 ft
		kilometre	= 0.621 mile

AREA

square inch	= 6.452 cm^2	cm^2	= 0.155 sq in.
square foot	= 0.093 m^2	m^2	= 1.196 sq yd
square yard	= 0.836 m^2	km^2	= 0.386 sq mile
square mile	= 2.59 km^2	ha	= 2.471 ac
acre	= 0.405 ha		

VOLUME (DRY)

cubic inch	= 16.387 cm^3	cm^3	= 0.061 cu in.
cubic foot	= 0.028 m^3	m^3	= 31.338 cu ft
cubic yard	= 0.765 m^3	hectolitre	= 2.8 bu
bushel	= 36.368 litres	m^3	= 1.308 cu yd
board foot	= 0.0024 m^3		

VOLUME (LIQUID)

fluid ounce (Imp)	= 28.412 ml	litre	= 35.2 fluid oz
pint	= 0.568 litre	hectolitre	= 22 gal
gallon	= 4.546 litres		

WEIGHT

ounce	= 28.349 g	gram	= 0.035 oz avdp
pound	= 453.592 g	kilogram	= 2.205 lb avdp
hundredweight (Imp)	= 45.359 kg	tonne	= 1.102 short ton
ton	= 0.907 tonne		

PROPORTION

1 gal/acre	= 11.232 litres/ha	1 litre/ha	= 14.24 fluid oz/acre
1 lb/acre	= 1.120 kg/ha	1 kg/ha	= 14.5 oz avdp/acre
1 lb/sq in.	= 0.0702 kg/cm^2	1 kg/cm^2	= 14.227 lb/sq in.
1 bu/acre	= 0.898 hl/ha	1 hl/ha	= 1.112 bu/acre

INFORMATION
Edifice Sir John Carling Building
930 Carling Avenue
Ottawa, Ontario
K1A 0C7

IF UNDELIVERED, RETURN TO SENDER

EN CAS DE NON-LIVRAISON, RETOURNER À L'EXPÉDITEUR